Artificial intelligence-driven innovation for enhancing supply chain resilience and performance under the effect of supply chain dynamism: an empirical investigation

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Abstract

Supply chain resilience (SCRes) and performance have become increasingly important in the wake of the recent supply chain disruptions caused by subsequent pandemics and crisis. Besides, the context of digitalization, integration, and globalization of the supply chain has raised an increasing awareness of advanced information processing techniques such as Artificial Intelligence (AI) in building SCRes and improving supply chain performance (SCP). The present study investigates the direct and indirect effects of AI, SCRes, and SCP under a context of dynamism and uncertainty of the supply chain. In doing so, we have conceptualized the use of AI in the supply chain on the organizational information processing theory (OIPT). The developed framework was evaluated using a structural equation modeling (SEM) approach. Survey data was collected from 279 firms representing different sizes, operating in various sectors, and countries. Our findings suggest that while AI has a direct impact on SCP in the short-term, it is recommended to exploit its information processing capabilities to build SCRes for long-lasting SCP. This study is among the first to provide empirical evidence on maximizing the benefits of AI capabilities to generate sustained SCP. The study could be further extended using a longitudinal investigation to explore more facets of the phenomenon.